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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

FOREST INSECT PROBLEMS
OF THE
UPPER WIND RIVER WATERSHED
WASHAKIE NATIONAL FOREST

D. murrayanae

BY

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Forest Insect Field Station,
Coeur d'Alene, Idaho
November 4, 1924

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FOREST INSECT
LABORATORY

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Forest Insect Field Station, 28
Coeur d'Alene, Idaho, 20
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INTRODUCTION

On August 5th, 6th, and 7th, 1924, the writer assisted by Mr. E. H. Peck, Lumberman, made an examination of certain lodgepole pine stands on the headwaters of the Wind River Drainage, Washakie National Forest. This examination had been requested by the District Forester, D-2, on January 22nd, 1924, and was for the purpose of determining the insect responsible for the damage, the future of the outbreak, and the possibility of artificially preventing further depredations. Two days were spent at the West DuNoir Tie Camp, while the third was used to visit the Sheridan Creek Sale Unit.

DESCRIPTION OF THE AREA

The region examined lies on the headwaters of the Wind River Drainage, and within a few miles of the Continental Divide. All of the merchantable timber in this territory is included in the Wind River Timber Sale Project. The topography, though mountainous, is not so very rugged. The mountain sides rise rather gently from the stream

bottoms, increasing in steepness and roughness as the lower levels of the Continental and local divides are reached.

The forest type is nearly a pure, evenaged, lodgepole pine stand of approximately 150 years, which will average 18,000 B. F. per acre. However there are many large, overmature trees, varying in D. B. H. from 18 to 24 inches, which are a great deal older than the main stand. As the higher elevations are reached the lodgepole pine type breaks away into a mixed Douglas Fir, alpine fir, and white bark pine(*) forest.

LOGGING METHODS

The Wind River Timber Sale Project is primarily a tie sale, though ^{it is} believed that some mine timbers have been made. This project which has been in progress for several years started on the Sheridan Creek Unit. After cutting this unit the Brooks Lake area was taken, and now the operation is on the east and west fork of the DuNoir River, which empties into Wind River a few miles below the Sheridan Creek Area.

The ties which are both hewn and sawed, are decked along the banks of the Du Noir and driven to the main river at high water. In the West Du Noir Unit there are two small portable sawmills, which are cutting the larger trees into ties. It is understood that prior to this time sawmills had not been used in this sale.

(*) This may be limber pine.

For hewn ties trees varying from 13 to 15½ inches D. B. H. are marked, while for the sawmill cutting all trees above 13 inches D. B. H. are taken. The stumpage price received for this material is \$0.50 per M. B. F., and \$0.05 per tie. All sawlogs above 15 inches D. B. H. are scaled by the board foot, while those under this diameter are counted as ties.

BRUSH DISPOSAL

The method of brush disposal followed in this sale is, for the most part, to lop and scatter. Along roadways, right of ways, sale boundaries, etc., the brush is piled and burned. As the trees are only utilized to a diameter that will produce a tie, there is a tremendous amount of rather large tops included in this brush.

INSECT DAMAGE

Du Noir Area

Throughout the Du Noir Sale Units there is a scattered insect infestation which could perhaps be considered as being slightly above the normal condition which exists in all overmature lodgepole pine stands. The large overmature trees are being attacked by the lodgepole pine beetle (*Dendroctonus murrayanae*). This insect confines its attack to the base of the tree and its work is easily recognized by the large pitch tubes which are formed on the outer surface of the bark at the entrance holes.

Many trees were recorded which had been attacked from three to four years in succession. This attack occurring as it does from three to four years results in the weakening of the trees to such an extent that secondary barkbeetles, some times *Dendroctonus monticolae*, attack the upper portion of the bole which results in the death of the tree. It is possible of course that the trees would die as a result of the lodgepole pine beetle attacks regardless of the secondary insects. The most common of these secondary barkbeetles attacking the upper portion of the boles is _____ (*).

The 1924 attacks of the lodgepole pine beetle was from seven to ten days old, the broods being in the egg stage at the time of the examination. The attack is made by the parent adults boring through the outer bark and constructing an egg gallery from 10 to 14 inches in length between the bark and the wood. Along this gallery eggs are deposited, the larvae from which construct one broad larval chamber, working away from the egg gallery, between the bark and the wood.

An examination of the stumps of trees cut during March and April 1924, showed that they had all been subsequently attacked by the lodgepole pine beetle. The broods in this stumps were in the young larval stage and the construction of the brood chamber had started. As this attack was apparently a week or so earlier than in the trees, it is as-

(*) These insects were collected but as yet determinations have not been received. This information will be forwarded as soon as received.

sumed that this class of material is preferred as a host rather than the more resistant green trees, as the first attacks were drawn by it.

In addition to the loss of the large trees, many of these too small for ties are being killed by barkbeetles, which are usually considered as being secondary killers. Most of these trees were found to have been previously injured by the felling of other trees, skidding of logs, etc. An examination of freshly cut logs, tops left in the woods, chunks, etc., showed that this material was carrying the main attacks of these insects. The most important of these secondary insects is _____.

Sheridan Creek Area.

As previously stated a visit was made to the Sheridan Creek Area, where there had been no cutting since 1914. In viewing this area from the opposite side of the valley very few red-topped trees could be seen. An examination showed that there had been a rather severe loss following the cutting, but that very few trees had been killed during the past few years. Only two 1924 attacks of the lodgepole pine beetle were found and these were both on very old and decadent trees. Several red-topped (1923 attacks) trees, which were very few in number, were examined and in every case the tree had been previously injured by logging equipment or by the felling of other trees, or else they were very old and decadent. In nearly case^{every} where the trees had been scorched by brush burning fires barkbeetles had sub-

sequently attacked. The only late attacks which were recorded were by the lodgepole pine beetle at the base for two or more years, with the secondary insects in the upper portion of the bole. However on the smaller trees which have been killed the work of _____ was found, which is the same insect attacking the trees in the Du Noir area. The conditions within this unit were apparently the same as those which now exist in the Du Noir Units.

Brooks Lake Area.

At one of the old camp sites of this area there is a group of 20 - 25 large, overmature lodgepole pine trees which are all attacked by the Lodgepole pine beetle. These attacks vary in severity from three or five to as many as twenty-five or more pitchtubes. All of these trees had been attacked over a period of two, and some as high as four years. However nearly all of these trees were very old and decadent, and had been previously injured by scorching from camp fires and burning buildings as well as the hacking of campers axes. All of these injuries apparently tend to induce the attacks of this insect. Very few trees had been recently killed in this area.

SUMMARY AND RECOMMENDATIONS

Actual control measures are not recommended for this infestation because of the following reasons;

1. The present status of the infestation is hardly above a condition which exists in nearly all mature lodgepole pine stands. Control measures for an infestation of this character are not justified unless they are instituted on a maintenance basis, and the value of this timber would not support such an action at this time.

2. The success of a control operation in the same area that cutting in is progress is very doubtful.

3. A plan of control would have to include all the stumps and tops within the area. It is possible that if the trees were cut at a certain period of the year the stumps and tops would not be susceptible to this attack.

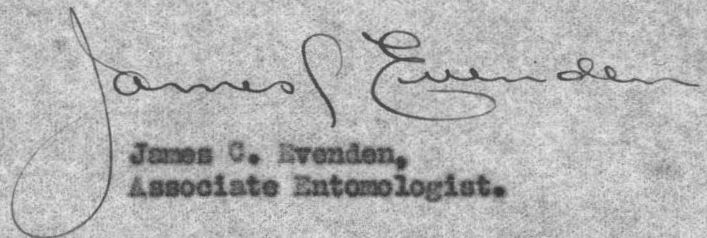
4. For the want of a better reason it seems apparent that this infestation has been developed from the stumps and slash resulting from the cutting operation. If this premise be correct then it is believed that the loss in the smaller trees due to the attacks of secondary bark-beetles will only continue throughout the period of cutting and perhaps for a year or two following. This belief was supported by the Sheridan Creek examination as apparently the same conditions existed in that area at the time of cutting as are present in the Du Noir Units at the present time, and the outbreak soon died down after the operation was completed.

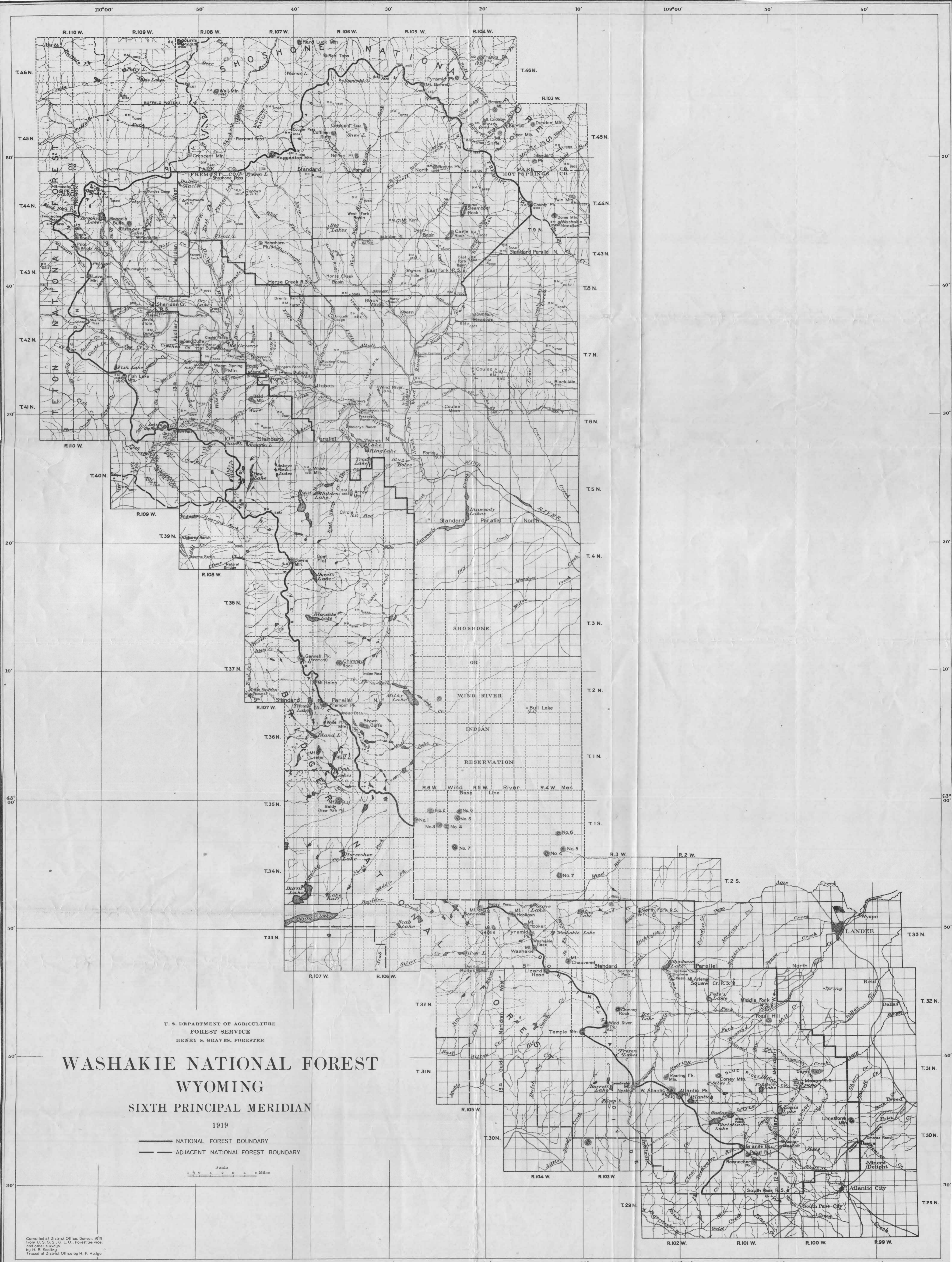
5. The institution of control measures in an attempt to protect the large overmature trees which have not been cut in these areas would not be justified. As these old decadent trees are very susceptible to insect attack, the success of control work is very doubtful. Furthermore control measures would need be placed on a every year basis, and the value of the timber in question would not support such a project. In taking this stand the writer does so with the realization that long before a second cutting can be made in this region, a very large percent of these overmature trees will have been killed by insects.

In recommending that no control measures be instituted in this region the direct control measures used by the Bureau of Entomology in combatting barkbeetle epidemics are referred to. However it is very possible that by the adoption of cutting or timber sale regulations, a certain percent of this loss could be prevented, if not in this area

then in operations of the future. In view of this fact it is recommended, that if possible, advantage should be taken of this situation to thoroughly study the possibility of secondary barkbeetles being bred in this class of slash to such numbers that they become primary killers of trees. In making the above recommendation there has been no thought of criticism relative to the silvicultural practices of this sale, but for the purpose of determining the relationship which exists between this character of logging slash and subsequent barkbeetle infestations, with the thought of its possible prevention.

Respectfully submitted,


James C. Evenden,
Associate Entomologist.



U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
HENRY S. GRAVES, FORESTER

WASHAKIE NATIONAL FOREST WYOMING

SIXTH PRINCIPAL MERIDIAN

1919

— NATIONAL FOREST BOUNDARY
— ADJACENT NATIONAL FOREST BOUNDARY

Scale
1 2 3 4 5 Miles

Compiled at District Office, Denver, 1919
from U. S. G. S., G. L. O., Forest Service,
and other surveys
by H. E. Sealing
Traced at District Office by H. F. Hedge